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THE INFLUENCE OF THE EXTERNAL AND INTERNAL ENVIRONMENT ON ROOMS IN A CITY RESIDENTIAL BUILDING

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Annotation: In any case, a person is influenced by factors of the internal environment of the room. In particular, the microclimate of the room, the chemical composition of the air, the natural lighting of the room, the electromagnetic field, noise, vibration and other factors can affect human health. Biotic and abiotic environmental factors affect a person in living conditions. Such an environment creates conditions for a person to be socially interconnected to a certain extent.

***Keywords*:** Factors of the internal environment of the room, the microclimate of the room, the chemical composition of the air, natural lighting, electromagnetic field, noise, vibration, biotic and abiotic environment, chemical, physical, location of the room, the reaction of the body.

In any case, the factors of the internal environment of the room have an effect on a person. In particular, the microclimate of the room, the chemical composition of the air, the natural lighting of the room, the electromagnetic field, noise, vibration and other factors can affect human health. So, biotic and abiotic environmental factors affect a person in housing conditions. Such an environment creates conditions for a person to be socially interconnected to a certain extent.

These conditions form a complex whole system that includes external and internal environmental factors. This system consists of chemical and physical factors that are part of the external and internal environment of the house, and it affects the human body according to the following scheme. External environment → residential buildings → internal environment → man.

Due to the fact that the human body is provided with many receptors, it responds through various feedback reactions by receiving the signals of the influencing factors of the external and internal environment. When the factors of comfortably built houses have a positive effect on the human body, there may be no reaction from the body, otherwise, the reaction of the human body may be manifested as a symptom of illness.

But it should be said that the factors of the internal environment of the room do not affect everyone in the same way, the normal temperature of the house for one person may not be the same for another person.

Therefore, it is necessary to study the factors of the internal environment of the house, the room, to develop the hygienic norms intended for the majority and to study them depending on the geographical climatic conditions.

In the construction of houses, all attention is focused on artificially creating a microclimate for residents and protecting people's health. During the day, the internal microclimate of the house and room should be as uniform as possible. For example, it is desirable that room temperature, wind speed

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in the room, its humidity, etc. have a good effect on the human body. In order to create good conditions in residential rooms, it is necessary to maintain its microclimate indicators in moderation. To achieve this goal, it is necessary to develop hygienic norms of these indicators.

Negative factors that affect the human body in the rooms of housing and community buildings can have a bad effect on the process of metabolism.

The main measures for the development of hygienic norms of internal environmental factors of housing and community building rooms are as follows:

1. in the development of the permissible norm of microclimate of residential rooms, community building rooms, physiological changes observed in the body during the day and seasons and adaptation of the body to climatic conditions are considered;
2. when developing hygienic norms of microclimate indicators, they should be taken into account separately depending on the age of population groups;
3. when determining the hygienically permissible norms of microclimate indicators, first of all, the heat retention property of the body, and secondly, clothes should be taken into account.

The microclimate of residential and community building rooms consists of the temperature of the air and surrounding objects, air humidity, and its speed of movement. The thermal regime of 2122 dwellings in districts with different climates was studied and the following results were obtained:

A. The temperature of 46-70% of residential rooms in very cold and moderately cold districts was around 20-22°C
B. The temperature of 63.1-95.2% of residential rooms located in districts with warm and hot climate was around 17-19°C; When designing residential rooms located in the IV geographical climate region of the territory of Uzbekistan, work should be carried out in accordance with the hygienic requirements of the microclimate.

In particular, the specific climate of Uzbekistan has a great influence on the housing climate. That is why heating of residential rooms, protection from noise, protection from sunlight, enrichment of air with conditioning ions, normalization of its relative humidity, etc., remain urgent issues.

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In a hot climate, such a house temperature has a bad effect on the health of the population. 90% of people with a house temperature of 24°S answered that they were satisfied, and when the house temperature was 32°S, 100% answered that they were dissatisfied. Especially, the temperature in the rooms of such houses does not differ from the outside air temperature in the evening, when the relative humidity drops by 10-20%.

People can feel better if the temperature of the house is adapted to the requirements of hygienic norms with the help of air conditioners. However, the 12-15°C difference between the external temperature and the internal room temperature disrupts the human body's ability to adapt, which in turn causes physiological changes.

For regions with different climates, the air temperature of residential rooms in winter is recommended separately in the following cases.

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Districts with different climates	Temperature °S
Cold District, Region 1 A	21-22
Cold District and other territories	19-20
Temperate average region	18-20
Warm regions	18-19
Warm mists	17-18

According to the observations conducted in the cities of Moscow, Leningrad, Noril'sk, Perm, Astrakhan and Kuibyshev, the central experimental research institutes for housing design found that the temperature of the housing at 2°S was normal for people. According to sanitary norms and rules, it is recommended that the temperature of houses be 20±2°C. But the highest temperature is recommended to be 20-22°C, and the lowest temperature is 18°C. In this case, the outside air temperature can be 24°C and even lower.

In the United States with a mild climate, it is accepted that the temperature of the house is 22-24°S, and in Switzerland and Germany it is 20°S

In the observations of the following years, it is expected to increase the temperature of the house, albeit slightly. In particular, it is recommended to keep the house temperature 20-23°S in cold climates, 20-22°S in moderate climates, and 23-25°S in hot climates.

The difference between the air temperature in this place and the wall temperature should not be less than 2°S horizontally in order for the heat in the human body to be regulated normally. A person sitting dressed may not feel such a temperature.

Therefore, if the wall temperature is lower, the human body radiates heat to the outside air, as a result of which the heat exchange in the body is lost. Especially, the difference in heat in the house at a height of 1.5 meters from the floor has a negative effect on the human body. The reason for this is that the floor cools down quickly, which causes people walking on the floor to catch a cold, especially children.

For example, if the difference 1-2 m above the floor is 4°S, the temperature of the feet will drop to 7-10°S. Therefore, the temperature difference between the floor and the height of 1.5-2 meters should not exceed 2-3°C. To create such conditions, it is recommended to keep the house floor warmer.

In general, the main indicators in the development of the norm of microclimatic factors in housing are the body temperature, the topography of the temperature in different parts of the body, the temperature of the limbs and the body temperature, and the loss of moisture through the tire due to evaporation. and includes heat perception. In the following times, heat release from the body through radiation and convection, assessment of the state of the central and autonomic nervous system, variability of body heat management, energy expenditure, hypothermia, etc. are additional indicators. The most important of the microclimate factors is the movement of air in the house.

Air movement can have different effects on the human body, that is, physical and physiological effects. Gentle air movement has a pleasant effect on the human body through sensory organs. If the air movement is equal to zero, it becomes difficult to release heat from the body, and a person feels uncomfortable. On the contrary, fast-moving air, especially in cold conditions, increases the release of heat through the body, where evaporation causes the body to cool down through convection.

The hygienic norm for air movement in residential conditions is 0.1-0.25 meters/sec, depending on the air temperature.

A person feels good at such an air speed. Air humidity has a great influence on the normal course of heat exchange in the human body. A person feels better when the relative humidity of the air is around

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30-60%. An increase in relative humidity, especially in the winter months, causes more heat loss from the body. Because moist air transfers heat well and quickly and absorbs a lot of heat. As a result, heat is quickly released from the tire through radiation and convection, causing the body to cool down and wind down.

The norm of relative humidity in homes is 30-45%, which is comfortable for the human body. If the air humidity is less than 30%, the mucous membranes of the nose and throat and the respiratory tract dry out. In addition, static electricity particles are formed on the surface of carpets hung in rooms and placed on the floor. It is not indifferent to human health.

In the era of advanced science and technology, it is also up to the builders to adapt the microclimate to the human body in housing and community buildings, and to ensure the hygienic norms of meteorological factors. However, in recent years, the defects in houses and community buildings, which are being built in a sloppy manner, are causing great damage to human health.

As a result, the microclimate of houses does not meet hygienic standards. Residential air temperature in reinforced concrete houses rises to around 30-35°S on hot days, and relative humidity is around 20-30%. When the temperature of the outside air reaches 38-42°S, the air movement is very low or still (nil), especially for young children, the elderly, and patients. Therefore, it is advisable to use building materials that meet hygienic requirements in housing construction.

Ecological views have existed in ancient Turkestan for a long time. Throughout its evolution, humanity has obeyed the laws of nature. During these times, man has studied the laws of nature. Because it is impossible to live without learning the laws of nature or adapting to these laws. As long as a person lives in this nature, he tries to create a comfortable environment for himself. The difference between the houses built from primitive times to the present is huge. Scientists of the past world left their ideas about how to build houses and in which environments in manuscripts. Hippocrates, who lived in 460-377 BC, recommended studying the air, soil, and water of residential areas in his book "On Air, Water, and Places." He wrote: "Whoever enters an unfamiliar city if he goes, he should pay attention to the wind direction of the city and how it is located in relation to the sun, because the location of the city to the north or south affects human health differently."

One of the main causes of residential air pollution is the accumulation of gases released as a result of physiological processes of the human body. Ammonia, carbon dioxide, hydrogen sulfide, volatile fatty acids, ammonium compounds, indole, scabol and other harmful substances accumulate in it.

M. Pettenkoffer was the first to determine the possibility of indoor air pollution depending on the amount of carbon dioxide gas. However, detection of carbon dioxide gas in small or large amounts in the air does not indicate that the air in the house is clean or dirty. According to many scientists, the presence of ammonia and its compounds in room air indicates that the room air is polluted.

Investigations have shown that a person who breathes air containing ammonia and its compounds for several hours may experience headaches, fatigue, and decreased ability to work.

If the air oxidation rate is equal to approximately 6 mg of oxygen in 1 m^3 of air, such air is considered clean. If 10-20 mg of O_2 is used to oxidize 1 m^3 of air, it is considered polluted air. A person absorbs 0.057 m^3 of oxygen and emits 0.014 m^3 SO_2 g of carbon dioxide during 1 hour.

The purpose of ventilation of houses is to renew the air in the room, that is, to replace the polluted air of the house with fresh air from outside. The issue of air exchange in houses was first raised by M. Petten-koffier and K. Flugge. According to them, the hygienically permissible norm of carbon dioxide in houses is equal to 0.07%.

O.B. According to Eliseeva, this norm is 0.05%. But the norm recommended by M. Pettenkoffier and K. Flugge has justified itself until now.

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SO_2 carbon dioxide is a gas formed in the process of metabolism in the human body. In addition to SO_2 carbon dioxide, a number of other substances are released from the human body, which causes the spread of unpleasant odors in homes.

How many m^3 of fresh air per hour is needed to keep the air in the house clean?

To answer this question, M. Pettenkoffier, A.P. Dobroslavin, F.F. According to Erisman, K. Flugges, it is necessary to determine how much air volume is needed for each person in the place of residence. This helps to determine the natural amount of SO_2 carbon dioxide in atmospheric air (0.04%) with the hygienic norm of SO_2 carbon dioxide in the composition of residential air. As a result of the calculations, the volume of air per person - in m^3 - is equal to 37.7.

However, as a result of the work carried out by the General and Communal Hygiene Research Institute of the Academy of Medical Sciences, the amount of air required for each person has changed a lot.

The reason is that as a result of the inspection, many harmful gases were found in the air of the house, namely, dimethylamine (C_2H_7N), hydrogen sulfide (H_2S), acetic acid (CH_3COOH), acetone (C_3H_6O), phenol (C_6H_5OH), nitrogen oxide (NO), diethylamine($C_4H_{11}N$), diethanelamine(C_4H_6N), methanol(CH_3OH), methylethylketone(C_4H_8O), butane(C_4H_{10}), butylene(C_4H_{10}), benzene(C_6H_6), hexane(C_4H_{10}), toluene(C_7H_8), quinoline(C_9H_7N) and the accumulation of others depended on how long people stayed indoors.

The concentration of these substances depends on how much fresh air is supplied to the home air. For example, if 120 m^3 of air is supplied per hour, the amount of harmful gases in the air of the house will decrease by 80-85%. The conclusion from this is that supplying 120 m^3 of air per person per hour to the house will reduce or eliminate atropotoxins, microbes and dust particles.

Therefore, in order to maintain the normal condition of the air in the house, the living area of each person should not be less than 17.5 m^2.

In particular, it is necessary to ventilate the toilet and kitchen often.

The malfunctioning of the ventilation means causes the deterioration of the air in the house. The use of natural gas in homes spoils the indoor air.

As a result of the burning of natural gas, the amount of heavy ions with positive particles in the air increases. For example, burning 4 burners of a gas stove for several minutes, after several minutes the number of heavy ions in 1 sm^3 of air increases 20-30 times, forming 200,000 or more positive particle ions. It is recommended to give air to the house room for 1 hour for each person - 30 m^3, for small children - 20 m^3. Then the composition of the air will not be disturbed. However, this norm should be revised.

Summary.

As a result of the burning of natural gas, the amount of heavy ions with positive particles in the air increases. For example, burning 4 burners of a gas stove for several minutes, after several minutes the number of heavy ions in 1 sm^3 of air increases 20-30 times, forming 200,000 or more positive particle ions. It is recommended to give air to the house room for 1 hour for each person - 30 m^3, for small children - 20 m^3. Then the composition of the air will not be disturbed. However, this norm should be revised.

In the territory of Uzbekistan, it is recommended that the temperature of community buildings be 21-24°S in summer, 20-22°S in winter, relative humidity 45-55% in summer, 30-50% in winter. Air temperature for treatment facilities is 24-25°S in summer, relative humidity - 40-55%, and 21-23°S in winter; relative humidity is 35-49%, intake of fresh air per hour is 90-100 m^3.

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Literature

1. Fayzulla Ziyatovich Chorshanbayev, Chinnigul Otaqulovna Meliyeva, Aziza Ziyatova; "Shaharsozlik normalari va qoidalari asosida turar-joylarini, inshootlarini o‘rganish hamda loyitsalash" Modern scientific challenges and trends 92, 19-26page 2018,issue 11 part 1 december 2018 Collection of Scientific Works WARSAW
2. Farux Madiev, Saidova Navruza "Landscaping is a priority for development", Scientific research results in pandemic conditions (COVID-19) Proceedings of International Multidisciplinary Conference, Part-3, Shawnee, USA",1,3,139142,2020,
3. Otoboev SH. T., Iskandarov T. I. “Kommunal gigiena” Tibbiyot oliy o’quv yurtlari talabalari uchun darslik.-T., Sino nomidagi nashriyot-matbaa birlashmasi, 1994y. 383 b., 51.21 UDK 613.5
4. F.Z. Chorshanbayev “Shahar qurilishi asoslari”O’quv qullanma. Fan bulog’i. Samarqand sh.2021y 10, 192
5. F. Z. Chorshanbayev, Ch. O. Meliyeva “Turarjoy xududlarning uygunlashuvida landshaftini tashkil etish”. Me’morchilik va qurilish muammolari (ilmiy-texnik jurnal), 164 (2020), 22-25
6. F.Z.Chorshanbayev, Ch.O.Meliyeva, A.Ziyatova “A Look on the History of Architecture”. “International Journal of Scientific Engineering and Science” Volume 4, Issue. 26-29 pages 2020
7. F.Z. Chorshandayev, Ch.O. Meliyeva, A. Ziyatova “The Role of Traditions in the Establishment of Historical Cities”. Eurasian Journal of Humanities and Social Sciences. 7, 2022, 57-62 pages, 2022, www.geniusjournals.org
8. Chorshanbayev F.Z., Meliyeva Ch.O., Ziyatova A.F., “Obosnovanie likvidatsii zatorov na samarkandskix gorodskix ulitsax i dorogax,nauka i texnika”. Mirovьie issledovaniya, 115-120,2020,
9. Yongqiang Zong, Xiqing Chen. The 1998 Flood on the Yangtze, China Natural Hazards. 2000. № 22. P. 165–184.